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ABSTRACT

This paper examines how community colleges are responding to external pressures to more closely collaborate with secondary schools in school reform efforts and school-to-work transition programs, focusing on four community colleges. These colleges engaged in a wide variety of collaborative activities with secondary schools. Two strong examples of significant systemic collaboration were found, where capacity-building strategies and program-creation strategies were combined on a large scale. The two examples were 2+2 programs with well-defined career majors at high school connected to community college technical degree programs. Although the collaborative efforts identified did little to change the nature of preparation within either secondary schools or community colleges, the more intensive collaborations seem to have forged broad-based participation on a wise range of shared interests. Sections in the report are: (1) Introduction--includes data collection methods and analysis; (2) Findings--presents findings from each of the four colleges and discusses current forms of collaboration; (3) Analysis--discusses the role of federal funding, factors promoting collaboration, and impacts on community colleges; and (4) Conclusions and Implications. (RDG)

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Community College

COMMUNITY COLLEGE AND SECONDARY SCHOOL COLLABORATION ON WORKFORCE DEVELOPMENT AND EDUCATION REFORM: A CLOSE LOOK AT FOUR COMMUNITY COLLEGES

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May 1999

Research Center

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ABSTRACT

Increased emphasis on workforce preparation for our nation's youth, particularly for mid-level and higher-skill development, requires greater postsecondary educational preparation, expanding the role of community colleges in school reform and school-to-work transition system building. Local, state, and federal reform initiatives—particularly Tech Prep of the Vocational Education Act, the School-to-Work Opportunities Act (STWOA), and Goals 2000: Educate America Act—directly and indirectly press community colleges and secondary schools to be more closely coordinated. Drawing on site visits to four community colleges, this paper examines how community colleges are responding to these pressures.

The four colleges engaged in a wide variety of collaborative activities with secondary schools—some simply a collection of different activities; others reinforcing and possibly even synergistic. These cases demonstrate not just the feasibility of collaboration, but also the creativity and variability of possible approaches. Although they did little to change the nature of preparation within either secondary schools or community colleges, two strong examples of significant systemic collaboration were found, where capacity-building strategies and program-creation strategies were combined on a large scale. These two had articulated 2+2 programs with well-defined career majors at the high school level connected to focused community college technical-degree programs.

It is clear that these collaborations are more than mechanisms for organizational efficiency and economies of scale. The more intensive collaborations seem to have forged broad-based participation on a wide range of shared interests.

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INTRODUCTION

The increased emphasis on workforce preparation for our nation's youth, particularly for mid-level and higher-skill development, requires greater postsecondary educational preparation. This expands the role of community colleges in school reform and school-to-work transition system building. The community college and secondary school relationship, however, is not well understood.

Community colleges and secondary schools are already somewhat interdependent, as high schools send many of their graduates on to community colleges (according to the American Association of Community Colleges, 47 percent of all first-time freshmen are community college students). Community colleges, in turn, have designed programs to fill in the gap between high school preparation and the requirements of their technical degree programs, requiring developmental courses or remediation as determined by college placement tests. This interdependence, however, is rarely addressed in strategic planning for educational reform.

Presently, various local, state and federal reform initiatives are directly or indirectly pushing these two educational systems to become more closely coordinated if not integrated, by stressing similar priorities, encouraging more postsecondary education participation for high school graduates, and enlarging the workforce preparation roles of both community colleges and secondary schools. Most central are three federal policies—Tech Prep of the Vocational Education Act; the School to Work Opportunities Act (STWOA); and Goals 2000: Educate America Act. All three stress increasing academic and technical skill levels for all high school students and incorporating an improved transition to postsecondary education (Orr, 1998).

The three federal policies convey four priorities: (1) to foster high

academic standards and occupational skill development; (2) to prepare students well for further education and gainful employment; (3) to support more integration between K-12 education systems and postsecondary institutions; and (4) to reform public education generally. Tech Prep and STWOA use similar system-building strategies and workforce development approaches, while STWOA and Goals 2000 stress high academic and occupational standards, using standards to drive reform and focusing on all students.

This paper examines how community colleges are responding to these pressures and funding opportunities to collaborate on workforce development and educational reform with local schools. It draws on site visits to four community colleges to examine local community college efforts to plan and develop services in response to these three primary federal policies (and related state and local policies). It considers how these policies and other factors have encouraged their collaboration with public schools and tries to ascertain the impact of these collaborations on community colleges, particularly in their mission and programs. While these results cannot be generalized to all community colleges, they provide insight into the conditions that encourage or inhibit active reform efforts and those that may inhibit, providing lessons for other institutions and policy makers.

Implications for research. Many opportunities exist for community colleges to increase their role in workforce preparation and educational reform, as stimulated by current educational and employment trends and pressures, and as encouraged by these three primary federal policies. There may be disadvantages to increasing the community college's role in these workforce development and educational reforms, and hindrances that limit them in their endeavor. But much of the research thus far has focused on each policy initiative and K-12 systemic change, rather than the combined policies and the experiences of community colleges.

How some community colleges respond to these opportunities, build upon

their relationships with local school districts and are themselves undergoing reform is the focus of this paper. Only through a more holistic perspective of community colleges' involvement and collaboration with secondary schools can the nature and centrality of these policy initiatives on a community college's mission be well understood, and the importance of these federal policy initiatives in stimulating K-14 system building be determined.

The research on which this paper is based addressed four policy questions: (1) how and in what ways are community colleges collaborating with local schools to improve the academic and workforce preparation of youth? (2) how have three primary federal policy vehicles (Tech Prep, STWOA, and Goals 2000) encouraged community colleges' collaboration with K-12 systems? (3) what other factors stimulate (or hinder) greater integration of these two systems in the preparation of youth for quality employment? (4) what benefits exist from these collaborations?

Data Collection Methods and Analysis

This study is based on case studies of four community colleges and their collaboration with public schools. The four colleges were selected to reflect differences in state support of community colleges through Tech Prep and STWOA and cohesive state planning as described in state administrative staff interviews. The four states selected were North Carolina, Florida, New Jersey and Pennsylvania.

The community colleges were selected from among state officials' recommendations about community colleges that were exemplary in Tech Prep, STWOA and contract training (as an indicator of the college's active engagement with the business community and its commitment to workforce development). The community colleges were also selected to reflect a range of population density in their counties. The characteristics of the four sampled community

colleges are summarized in Table 1 below.

Table 1: Characteristics of the four sampled colleges

College	State support for community colleges in Tech Prep and STWOA[1]	Cohesiveness of state planning for workforce development[1]	Regional demographics
MCC	Moderate in Tech Prep, weak in STWOA	Weak	Suburban
CCAC	Weak in both Tech Prep and STWOA	Weak	Urban
VCC	Strong in both Tech Prep and STWOA	Strong	Urban
GTCC	Strong in both Tech Prep and STWOA	Strong	Rural, with two cities

The four community colleges are average to large in size and diversity of programs, serving primarily one to two counties each, as shown in Table 2. They have sizable noncredit enrollments (more than double the credit enrollment for two of the community colleges). A large percentage of their students are under 22 years of age, ranging from 25 to 44 percent of their credit students. They all have diverse degree offerings. They differ widely in their state support and annual tuition.

[1] Based on state administrative staff interviews.

Table 2: Descriptive characteristics of four sampled community colleges

College	Total credit enrollment	Total noncredit enrollment	Percent of credit students who are under 22	Number of degree programs	Percent state-funded	Annual Tuition (FTE)
MCC	11,578	NA	40%	NA	20%	~$3,000
CCAC	NA	66,575	33	47	27	$2,140
VCC	36,800	16,140	NA	40+	NA	1,103
GTCC	10,000	27,414	25	60+	65	557

Case studies of the four community colleges were constructed based on data collected through two- to three-day site visits to each college, documentation on each college's programs, and state policy documentation and interviews. During the site visits, key college officials (president, vice presidents, Tech Prep and STWOA coordinators, and institutional researchers) were interviewed, a small number of academic and vocational faculty were interviewed individually or in groups, and Tech Prep students were interviewed. Whenever possible, relevant school district officials (such as superintendents, Tech Prep coordinators and STWOA coordinators) and business and industry partners were interviewed, and classes and meetings were observed. Relevant documentation on Tech Prep and STWOA programs and services were collected, such as proposals, funding reports, evaluations, brochures and other descriptive and planning materials. Documentation on the colleges' core programs, such as catalogues, enrollment figures, and budgetary information, were also collected. Finally, through a parallel study, the state policies on Tech Prep, STWOA and Goals 2000 were collected for

the four states, and state officials were interviewed about the role of community colleges in policy implementation.

FINDINGS

The findings are organized in five sections. The first section briefly describes each community college's collaborative experiences. The second section summarizes the types of collaborations found and analyzes patterns of each. The third section assesses the degree to which three federal policies were instrumental for K-14 collaboration, while the fourth section considers the role of other factors. The final section addresses the impact these collaborations have had on community colleges.

The four selected community colleges were all engaged in some form of collaboration with local secondary schools in the 1997-98 academic year. The scope, intensity and concentration of these collaborations, however, varied greatly. Below is a summary description of each community college and a portrayal of their collaborative relationships.

MCC

MCC is a community college located in central New Jersey, serving a diverse array of communities from urban to rural. It began as a transfer institution and feeder school to a local university and, although it continues to be primarily a transfer institution, it has diversified to include technical degree programs, technical and non-technical noncredit programs, and a recent push toward contract and customized training. MCC has coordinated the county's Tech Prep initiative since 1991, but has never engaged more than 9 of the 20 local school districts in its county. Its Tech Prep initiative is primarily a series of components, including a high school project-center course, Introduction to Technology; a High School Participation Program (evening courses for high school students); course

articulation agreements; curriculum development through faculty and teacher partnerships; career and college orientation programs and activities for high school students; and various professional development activities for college faculty and high school teachers. The local high schools vary widely in how much they participate in Tech Prep, and in their inclusion of any of these components and its targets, often limiting it to just vocational education or high-risk students. The college participates in two local STWOA partnerships, but has a very limited role (on one, they are advisory; on the other, they offer a small career-awareness program).

The college has other workforce development efforts with local school districts. It recently developed a regional collaboration with local school districts, colleges, and business and industry to establish a Tech Prep-like engineering technology program. It began a pilot "telemedia communications" technology program, through a National Science Foundation grant for high school students. MCC's other educational reform work is far more limited. It has helped two school districts with their Goals 2000 planning for postsecondary education transition, reporting on how poorly the high school graduates have performed on their placement tests and which students were enrolling at the community college (often those the high school had thought were not college bound). Finally, the community college provides teacher professional development, particularly in math, science and technology, using in part federal Eisenhower grant funds and National Science Foundation funds (as well as directly marketing their services to schools on a fee-for-service basis). Cutting across their work with local schools has been an effort to improve their image as a quality educational institution and dispel negative myths about who should attend.

CCAC

CCAC is a large, multi-campus, urban community college in Pennsylvania, serving primarily one county, which has 43 school districts—ranging from rural to suburban—and one large urban district. It offers a wide variety of transfer and technical training degree and certificate programs, as well as noncredit courses. Its mission stresses its role as linking education and economic development, and broadly interprets its community service role, including its access function for the disenfranchised. It has experienced a small but steady decline in enrollments in recent years, which it has tried to stem through a comprehensive strategic planning process. The state's school-to-work transition initiatives are uncoordinated and give priority to local secondary school reform. CCAC manages the county Tech Prep initiative, and has created well-defined 2+2 programs of study leading to specific associate degree programs in seven technical areas. The high school component recommends specific applied academic courses and technology training. Its Tech Prep model stresses strong academic skill preparation for postsecondary education success and meeting workplace skill requirements. The community college's own course catalogue clearly identifies Tech Prep option degree programs.

The Tech Prep consortium is broadly represented in education, business and industry, and other relevant interests, and is staffed by a director and four coordinators who work with each community college campus and their nearby high schools (while almost all the school districts are part of the consortium, not all participate actively in the Tech Prep program). Through Tech Prep, CCAC formed curriculum development teams (with faculty, teachers and business representatives) to create applied academic courses in math, science and English, and later, in technology. The school districts adopted some or all of the courses or used the core competencies to assess their own courses. More recently, CCAC tried to establish high school articulation agreements, but encountered difficulty with the state's restrictions on awarding college credit for high school Tech Prep courses (but not

other courses). CCAC also helps a few high schools use their college placement test to assess curriculum gaps and target students' skill deficiencies. CCAC spent considerable effort overcoming turf problems with the area vocational technical schools and parental prejudice against vocational education, while trying to promote Tech prep to all high school students. At the time of the site visit, most Tech Prep students were enrolled in the local area vocational technical schools and were planning to continue at CCAC. Local high school collaboration varied from complete buy-in of the whole Tech Prep model to a course-by-course articulation.

In contrast, local STWOA system building was still in a planning stage at the time of the site visit, with the state shifting support from small to larger regional partnerships. The prior existing partnership plans had been quite different, and there were turf battles over what entity should be the lead agency for the designated region. Moreover, a broad regional planning agency was being encouraged by the state to take the lead. These battles left CCAC in a more advisory role. CCAC was improving its own programs' workforce relevance by using a WorkKeys initiative to assess skills for effective job performance in several industries and use these as competencies to evaluate their occupational programs, and eventually to assist in planning for Tech Prep and other articulated programs.

CCAC has several projects with local school districts, primarily to improve student preparation and extend the college's community service function. These include: a Middle College High School program as an alternative school for several local districts' under-performing students; vocational program offerings for high school students, during and after school; several articulated college-level technical and academic courses; and summer school programs. Finally, it offers services for local school districts that they cannot afford on their own, such as adult evening programs. To increase student enrollment, CCAC developed a scholarship program for high school graduates, sponsored an annual guidance counselor event on campus, and reached out to local school district officials to explain their programs and

services. Finally, through the local council on higher education, CCAC students are able to enroll in courses at other colleges.

VCC

This is a large urban community college with five campuses in two counties of Florida, with a wide variety of transfer and technical degree programs. It coordinates with two countywide school districts. In recent years, it shifted its mission to workforce and economic development, adding a vice president for economic development. It undertook several school-to-work transition programs, preceding and later incorporating Tech Prep and STWOA. These included forming a regional council to review articulation agreements and developing a career-preparation program. The community college and its two partner school districts have combined Tech Prep and STWOA to integrate the secondary schools and community college more systematically and prepare students for advanced technical jobs. They pooled these and other grant resources to develop articulated and applied academic curriculum, and work-based learning experiences. Its Tech Prep program is organized in three career areas and requires students to take applied academic and other courses to prepare for both postsecondary education and a career. Through Tech Prep, STWOA and other efforts, they have several middle school and high school career awareness and postsecondary education exposure programs. The college annually sponsors a joint meeting of business and industry representatives and educators to address relevant educational issues. Through articulation agreements and assessments, students can earn college credit for high school courses (the assessments were jointly developed by the high school and college staff). The community college offers Tech Prep scholarships for qualified high school graduates (qualified vocational education students can also earn the state's Gold Seal scholarship).

VCC offers intensive industry-based professional development, through its Educators-in-Industry Institute (for teachers, administrators and faculty), and Focus on the Workplace for faculty work experience in industry. It uses the DACUM process (Develop a Curriculum) to assess job competencies and upgrade secondary and postsecondary technical programs, using Tech Prep funds to train facilitators. Each high school has a full time Tech Prep coordinator to facilitate student recruitment and planning. The Tech Prep and STWOA consortia are merged with broad business and education representation and an elaborate subcommittee infrastructure to support various efforts, including developing curriculum frameworks, offering staff development and creating a career development program for middle school students. There is extensive program marketing, with a compact disc made available to students for postsecondary education and career planning. By integrating STWOA with Goals 2000 at the secondary level, local district officials report that they are promoting postsecondary education more and emphasizing the community college for its access and ease of use. The STWOA/Tech Prep efforts complement the district's other systemic school reform efforts, whereby high schools are reorganized into career clusters. As a result of the combined efforts, more than a fourth of local high school students (over 10,000 students) are designated as Tech Prep, having filed program plans with their guidance counselors, and more than half of all high school students have taken coursework that fits the Tech Prep model.

GTCC

This community college is in rural North Carolina, serving a large economic region, including two small cities and one countywide school district. It started as a technical school and now offers over 60 one- and two-year degree programs in college-transfer and technical training as well as noncredit program offerings. Most of its technical training includes a work-based option and tries to

be responsive to local growth industries as well as its community's educational needs. As a result of increasing local industry criticism of public secondary and community college education and the formation of the countywide school district, the community college president and district superintendent began to collaborate on extensive educational improvement and restructuring, to establish a K-14 educational continuum with an emphasis on high academic standards and technology. Both aggressively revamped their programs and curriculum, in partnership with local industry, using the DACUM assessment for community college program evaluation.

They combined Tech Prep, STWOA and other federal and privately funded initiatives. By working closely with the local chambers of commerce (through a joint education and industry subcommittee) they evaluated their educational problems and established standards and benchmarks for improvement. The business community began pilot youth apprenticeship programs with local high schools; these programs in turn were expanded as a Tech Prep approach, adding postsecondary articulation. The three partners (the school district, community college, and business and industry representatives) made this emerging model a priority for broad implementation and to serve as a cornerstone to their systemic reform efforts. Eventually, they formed an elaborate Workforce Investment Advisory Board to oversee their system-building efforts. They established seven technical programs of study, revamped the high schools into college-prep and college-tech-prep tracks, requiring all to take algebra (as a postsecondary education prerequisite) and, for the latter, sequenced technical courses. They also developed integrated curriculum, career development plans, articulation agreements with GTCC and industry-sponsored GTCC scholarships. Each high school has an industry education specialist to help students with career counseling, course planning and postsecondary education planning. Thirteen

percent of the district's almost 16,000 secondary students were designated as college Tech Prep (by their course-taking patterns).

With the addition of STWOA, the school district, community college, and business community expanded their several comprehensive pilot technical youth apprenticeship programs further, creating eight programs in all. These incorporated the 2+2 Tech Prep structure and the youth apprenticeship work-based learning component, with significant industry participation in program development and delivery. To foster K-14 comprehensive guidance and integrated curriculum, they developed career action plans and industry exposure activities for all high school teachers. The business community aids in on-site program recruitment, has pledged to develop 1000 youth apprenticeship opportunities, and is helping to develop community college scholarships. Through a corporate foundation grant, the community college is providing intense professional development for teachers and faculty on work-based learning, curriculum integration, student-centered instructional strategies, and assessment. The college paired academic and vocational faculty to develop integrated curriculum. The college is also sharing its college placement test results with each high school principal. Finally, the college and school district strengthened their concurrent enrollment options for advanced technical courses and other program articulation.

Current Forms of Collaboration

The four community colleges engaged in a wide variety of collaborative activities, which differed in their educational purposes and workforce development role, their scope and intensity, and how well they were integrated collectively.

Awareness activities. The most broadly reaching collaborative efforts between community colleges and secondary schools were various awareness activities. These included efforts to communicate information about: the changing

labor markets, the increasing need for higher education in quality employment opportunities, and the academic skill demands for success in higher education and the workplace. The activities, which targeted students, parents, other educators, and employers, included student-focused career fairs and awareness programs, and training for guidance counselors and teachers.

Table 3 shows the prevalence of these various activities. The four colleges organized them somewhat differently, but they served similar purposes. Although these activities tended to serve large numbers of students, as well as reach large numbers of parents, employers and educators, they were usually low-intensity activities and of short duration (such as one-day career fairs at the community college). Many were designed for multiple purposes—providing information on the labor market requirements, interesting students in career opportunities, explaining the related educational requirements, and recruiting students for high school and community college programs.

Some community colleges started their awareness activities in the middle grades, to inform students' high school program selection. One college integrated these various activities into a multi-year sequence for local area high school students. Some of the teacher career-awareness activities were designed to influence curriculum, as well as the teachers' guidance role with students, to help them see first-hand how some technical fields had changed and how selected academic and technical skills were used in the workplace. The most intensive awareness activities were organized as teacher training programs, which gave a few teachers and college faculty paid work experiences in business and industry.

Despite their prevalence, it was not clear how much these awareness activities reinforced one another, such as combining awareness activities for teachers with career planning activities for high school students.

Because parents, counselors and teachers were often unaware of the changing career opportunities and had misconceptions about technical fields, they

did not encourage students to pursue technical careers (and even discouraged them) despite the existing career opportunities. As a result, officials at all four colleges included career and postsecondary educational awareness into their new program materials.

Table 3: Awareness activities by type and community college

Activities	MCC	CCAC	GTCC	VCC
Career awareness programs for students	Transition Day—middle school student career development program, with a college tour. Career exposure and college tour for high school sophomores countywide Career development workshop for co-op students On-campus senior experience On-campus junior experience for career and college exposure Evening program for high school seniors on the college's programs and services Work readiness workshops of high school students	High school career awareness effort as part of Tech Prep program recruitment	Developed a K-12 career guidance plan	Blue Print for Career Preparation Developed a middle school career development program Developing a comprehensive secondary and postsecondary career guidance program Community college sponsors college exposure and career planning programs for high school students The STWOA partnership created a compact disc for postsecondary educational planning to the community college and elsewhere
Parents	Evening program to explain the		Employer open houses for parents,	

	college's programs and services		stressing the importance of postsecondary educational preparation	
Guidance counselor career awareness	Annual high school counselor career and educational awareness with business and industry	Annual high school counselor career and educational awareness with business and industry		Workforce Development Roundup with business and industry, educators and counselors on workforce development issues and community college resources
High school teacher career awareness	Annual high school teacher career and educational awareness with business and industry			Educators in Industry program with 18 hours of local business tours and presentations on the changing economy
Community college faculty				Educators in Industry program with 18 hours of local business tours and presentations on the changing economy Six week paid work experience in business and industry
Business and industry	Annual Job Fair breakfast for employers and guidance counselors to foster communication and profile college programs Business roundtable			See the Workforce Development Roundup above

Marketing committees for Tech Prep and STWOA consortia				Developed Tech Prep marketing materials for students, parents and the business community, emphasizing technical career opportunities and related community college programs of study

Improving students' preparation for postsecondary technical education.

The four community colleges undertook various activities, either collaboratively or as an extended service to local public schools, to help schools prepare some or all of their students for advanced technical preparation, particularly in their own programs. These activities included establishing standards for courses and student performance, sponsoring professional development on integrated curriculum and applied academic courses, and developing applied and integrated academic and technical curriculum, as shown in Table 4.

Table 4: Strategies to improve student preparation for postsecondary technical education

Strategies	MCC	CCAC	GTCC	VCC
Sharing college placement test score results with local high schools	Report to districts on their high school graduates who enroll at the college and their remediation needs Share college placement tests and results with high school teachers One high school used the college placement test	Using college placement tests to assess high school students' academic skills, to address gaps	Share results on individual students with their former high school principals	NA

	with their students to assess gaps in teaching			
Establishing standards			High schools dropped their general track and require algebra as part of Tech Prep	Developed student assessment strategies for secondary courses to articulate with postsecondary programs and trained secondary teachers on their use
Assessing job skills required in various businesses and industries		WorkKeys used to assess local job skills as a service and to evaluate their own technical programs	DACUM assessment to evaluate community college programs	DACUM analysis to inform Tech Prep and STWOA programs, secondary and postsecondary
Professional development	On applied and integrated academic curriculum development for local secondary school teachers Offered secondary teacher training in math, science and technology on a fee-for-service basis and through federal grant support (Eisenhower and NSF grants)	On applied and integrated academic curriculum development for local secondary school teachers College encouraged local school districts to pool their resources for such professional development	On applied and integrated academic curriculum development for local secondary school teachers Employers provide industry exposure to teachers and faculty Obtained a corporate foundation grant for teacher and faculty professional development on work-based learning, curriculum integration and assessment Paired academic and technical instruction faculty for integrated	On applied and integrated academic curriculum development for local secondary school teachers Educators in Industry Institute—work-based industry exposure for teachers, faculty and other educational staff Focus on the Workplace—whereby college faculty have short-term paid industry work experience

			curriculum development Industry tours for math and science teachers Cooperative learning strategies for college and school district staff	
Curriculum and course development	Developed a high school project-center course for all Tech Prep seniors, Introduction to Technology Created curriculum development partnerships between community college faculty and high school teachers, to develop integrated math, science and technology courses (using Tech Prep and NSF funding)	Curriculum development teams of teachers, faculty, and industry representatives, in various science, math, English and technology	Adopted CORD[1] courses and provided professional development Facilitated paired faculty applied course development Used national standards for K-14 curriculum development	Adopted CORD courses and provided professional development Developed integrated curriculum and activities for local schools
Other strategies to encourage better school-to-work transition processes in high schools				Teacher Recognition program for best teaching practices based on school-to-work themes, with cash award and recognition

These various activities were somewhat less broad in scope than the awareness activities, but were more intensive and more likely to affect students, particularly through new courses. All four colleges provided training for secondary school teachers on integrated academic curriculum. Two colleges offered teacher seminars on the changing labor markets, new industry

developments, and the academic and technical skills required at the workplace. Businesses were used as classrooms for the seminars. Both colleges also arranged for a few faculty to have short-term work experiences to gain first-hand knowledge of these changes. These differed, depending on how the local school district used them as part of district-wide reform, particularly in whether these districts mandated or strongly encouraged all teachers to participate.

These various activities put community colleges in a technical expertise role vis-a-vis local school districts, by serving as organizers, trainers and facilitators for the professional development, course development and standards setting activities. In two of the four colleges, the faculty also participated by upgrading or otherwise changing their own courses.

According to interviewed community college officials, the curriculum development efforts helped to engage business participation and forge closer working relationships between high school teachers and community college faculty. The most beneficial, as some community college officials explained, were the collaborative curriculum teams formed by some of the community colleges to develop new courses and upgrade others. The curriculum development efforts engaged all participants in a joint effort to improve the technical education programs, and gave business and industry input in designing programs that met their workforce development needs. This in turn, some community college officials thought, improved high school guidance counseling (by encouraging more students to follow up their high school coursework in the community college programs) and business hiring of program graduates (by having training match their needs better).

Two types of academic standards-driven activities complemented these efforts. The first type raised high school standards in how well they prepared all students for further education and careers. The second created up-to-date

industry-relevant standards for courses and programs and higher academic skill performance.

As an outgrowth of the community college and school district's work to implement Tech Prep and STWOA programs, in some high schools, college preparation and a career focus were required for all students. In addition, the general track was eliminated, and students had to take at least one algebra course in a Tech Prep program of study. More indirectly, some community colleges informed the high schools about their requirements for academic proficiency. The community colleges used a variety of strategies to communicate their standards, including administering college placement tests to high school students (so the high school teachers could see the skill gaps), and sharing college placement test results with school officials (for their own graduates). At least one community college, VCC, developed a rigorous assessment process with the local high schools to evaluate students' proficiencies in order to earn college credit for designated high school courses. VCC also worked with its local high schools to develop strategies to integrate standards for academic improvement with school-to-work transition system-building planning (as part of the combined focus of the school districts' STWOA and Goals 2000 initiatives).

While a review of the four community colleges uncovered a wide variety of academic standards-setting activities, none of the community colleges used all of them, and some of the strategies (e.g., assessment) were narrowly focused, potentially affecting only a few students. At the time of the site visits, only a few teachers were administering the college placement tests to their high school students. Nonetheless the community college officials thought that these assessment activities were illuminating for the high school teachers, who were surprised (1) to learn how poorly their students were performing on community college assessments, and (2) to find out which of their students (including some who they had thought were not college bound) had enrolled in the community

colleges (and done poorly on the placement tests). The community college officials reported that the high school teachers found the information useful in rethinking their own instruction and student preparation.

Three of the community colleges used either the WorkKeys or DACUM models to evaluate industry skill requirements and match these with their program competencies and highlight where adjustments were needed. These assessments were conducted with active business and industry participation to profile the skills and competencies that students must gain to be successful employees in targeted technical fields. This information, while useful in upgrading the community college courses, seemed only to indirectly inform the high school courses. At the time of the interviews, only one community college was planning to share the information from their competency assessments with local high schools, and two other community colleges may have shared the information as part of their collaborative curriculum teams.

Simplifying student transition into community colleges. To simplify the transition process for high school students who want to pursue an advanced technical degree program, the community colleges developed various strategies with local school districts. These activities included aligning technical training programs from high school through community college; aligning high school and community college courses, so high school students could earn some college course credit (not necessarily for equivalent credits); and enabling high school students to enroll in community college courses for high school course credit (this practice is known as dual enrollment, because students earn both high school and community college credit for the same course).

Table 5: Transition activities

Strategies	MCC	CCAC	GTCC	VCC
Program articulation		Project Rigor—split time in high school and community college technical program After school nurses aide certificate program for high school students		Integrated various technical programs among the high schools, tech centers and community college
Course articulation	Formed Tech Prep course articulation agreements	Articulated vocational course and accelerated instruction for gifted high school students		Region 19 articulation council for secondary school and community college articulation agreements Coupled with assessment systems to determine college credit
Dual enrollment	High School Participation program for students to enroll in selected Tech Prep option college-level evening courses Other dual enrollment courses are available		Foster concurrent enrollment in advanced technical courses at the community college	Offer dual enrollment options
Scholarships		Privately raised scholarships for recent high school graduates	Asked businesses to offer full two-year community college scholarships as part of a College Tech Prep/Youth	Locally developed Tech Prep scholarships to the community college State's postsecondary

			apprenticeship program The community college obtained corporate grants for Tech Prep scholarships	vocational education scholarships available to high school vocational education graduates (on merit and who followed the Tech Prep course plan)
Other activities that familiarized students with the community college		Sponsors various school year and summer programs for high school students on leadership, community service, science, math and course make up.		

All the community colleges offered these opportunities, but the number of students who benefited varied. When used as part of a comprehensive program, these transition activities were more likely to be used by larger numbers of students and facilitate more student concentration and continuity within a technical training area.

As part of Tech Prep, all four community colleges and their participating high schools identified seven to nine career-cluster areas around which they organized the high school students' course work and work-based learning experiences. These career clusters were then articulated with the community colleges' technical degree programs. The high school career clusters were broadly defined (such as business, engineering and health care), while the community college degree programs were narrowly defined for selected jobs.

The more closely-knit articulation was at the course level, in which community college faculty and high school staff identified individual courses that matched or were equivalent to part or all of a community college course. This was done on a course-by-course basis, and was often limited to a few technical courses

and some applied academic courses, particularly those courses that were part of a Tech Prep program or other school-to-work transition-type program. Course articulation agreements had preceded Tech Prep, but became more prevalent in the four community colleges as a result of their Tech Prep collaboration with the local high schools.

Dual enrollment represented a way for high schools to offer (otherwise unavailable) advanced academic and technical courses to their students, to help high school students begin to accumulate college credit, and for community colleges to offer high school students early exposure to their programs. The school district would cover the tuition and fee expenses. However, because of several logistical and bureaucratic problems, including transportation and scheduling, very few students were enrolled under these arrangements.

The community college scholarship programs encouraged enrollment. Students at the three colleges that offered them explained that the scholarship, more than the prior college credit accumulation, had encouraged them to enroll there. Nonetheless, the colleges had only a few scholarships available, with the exception of VCC, which had a state vocational education scholarship program for all students who met its performance criteria.

Comprehensive programs. All four community colleges had two or more comprehensive secondary school and community college career-focused programs, using applied academic curriculum incorporating work-based learning and articulated coursework between secondary and postsecondary education. These, however, differed in their size, scope and relatedness.

Table 6: Comprehensive work-based learning programs between high schools and community colleges	
Community colleges	Programs
MCC	Tech Prep—primarily a series of program components, which were not consistently integrated within the schools or coordinated with the community college Mecomtronics engineering technology program—a regional collaboration with local school districts, colleges, business and industry for a 2+2+2 program with work experience Telemedia communications technology program—a pilot curriculum-based program, 2+2, to prepare students for the telecommunications industry (NSF funded)
CCAC	Tech Prep—seven career areas; recommended course sequence in high school applied academics, technology, and technical courses; articulation to community college programs; four coordinators Middle College Program—an community college based alternative program for at-risk high school students Blocked programs in technical training, articulated with the community college
GTCC	College Tech prep/Youth Apprenticeship— Its Tech Prep targets 10 career clusters, and its youth apprenticeship programs are in seven technical areas. Its Tech Prep combines curriculum integration, career guidance and an apprenticeship component They expanded several existing youth apprenticeship programs into Tech Prep/youth apprenticeship programs with community college articulation
VCC	The school districts and community college built up three comprehensive program models to make them more widely available to high school students as part of their academic and career preparation: --youth apprenticeship --career academies --Tech Prep—five career areas; applied academic courses, algebra, and at least one technical course Community college and local school districts have an integrated vision of Tech Prep and STWOA, combining all the key elements and incorporating workforce development strategies in the community college, serving 7 key growth industries

All four community colleges developed Tech Prep programs, with similar components, with some (or all) of the local high schools in their service area. The programs followed the federal guidelines—created and implemented applied academic courses; sequenced technical training in selected career majors, and articulated courses and programs. Two of the colleges had to market the Tech Prep program as components to their local high schools, succeeding primarily by encouraging individual teachers to collaborate in using applied academic courses. This approach resulted in varied implementation across their high schools, with some adopting the Tech Prep model fully and others using some components selectively. As a result, few students had a comprehensive Tech Prep program experience and, while they may have subsequently enrolled in the community college, were not distinguished as having been in Tech Prep. Nonetheless, they had a few other, smaller, more-focused comprehensive programs, which were more feasible because they involved only the most committed local schools.

The other two colleges developed a fully integrated approach with their local school districts to articulate their programs and encourage all students to prepare for postsecondary education and careers. Both colleges were able to build on Tech Prep's key attributes, particularly its 2+2 approach, to bridge secondary and postsecondary education and articulated instruction in key career clusters. They then incorporated STWOA objectives, offering work-based learning as part of the preparation. Both, therefore, were able to develop comprehensive Tech Prep programs with full participation from their local school districts, and enhanced the model with other school-to-work transition features, as comprehensive program options for students.

GTCC's local school district did away with its general track and converted its vocational track into Tech Prep—redesigned as College Tech Prep—with seven career industry area options (including engineering, business and health

care). The community college and school district engaged broad-based business and industry participation in their effort, to help develop curriculum (particularly to identify critical skills and infuse relevant industry context and applications) and to generate paid work experiences. The community college and school district used STWOA to add work-based learning, ideally through a youth apprenticeship experience. Their goal was to make this approach available to all College Tech Prep students, and not limit it to a few, as often occurs with youth apprenticeship programs. They also set as a goal to enroll 1000 students by the Year 2000.

The other community college, VCC, and its two local school districts integrated their STWOA and Tech Prep program strategies to offer high school students the option of enrolling in one of several types of programs—career academies, youth apprenticeships and Tech Prep programs (with 43 different program offerings). All their programs incorporated integrated curriculum, work-based learning experiences, career-focused courses, and college preparation, and were often articulated with the community college's programs. Combined, these programs served a large number of students and encouraged many to continue at the community college. VCC's STWOA was built upon its Tech Prep initiative, adding comprehensive career guidance (secondary and postsecondary), further emphasis on applied and contextualized instruction, and work-based learning at the secondary and postsecondary levels. The consortium identified seven target industries (based on occupational forecasting). VCC worked in full partnership with the local school districts and business and industry to develop the STWOA system components, including changes in the community college programs.

These comprehensive programs were primarily high-school-based and articulated into existing community college programs. The graduates of these programs usually attended the regular community college courses and were not given any other special designation. The only difference was that they may have been assigned to more advanced courses according to their existing credit

accumulation and proficiency (based on the community college's assessments), thereby shortening their total community college degree time.

Two community colleges modified their own programs of study to incorporate work-based learning and the applied and integrated curriculum approaches underscored by STWOA and Tech Prep. VCC, for example, added faculty-supervised internships for all students, improving on its former co-op education experiences.

Shared governance. The basis for community college and local school district (and sometimes business and industry as well) collaboration came primarily from the requirements of the federal Tech Prep and STWOA funding. Both federal initiatives required that there be regional partnerships or consortia, with school district, community college, other educational and business representation, to provide planning and oversight. This joint oversight allowed the community colleges and school districts to plan together for the various awareness activities, curriculum development and program development. These partnerships and consortia formalized the relationship between the two types of institutions and in some cases became the springboard for more substantive planning than the two federal initiatives encouraged.

The community colleges were always the lead agency for the Tech Prep grants and sometimes for the STWOA grants. Two community colleges were part of regional consortia that merged their Tech Prep and STWOA oversight structures, goals and objectives. These integrated consortia then created elaborate subcommittee structures with tri-partite representation from the school districts, community college, and business and industry. Collectively, they addressed common priorities, such as curriculum, articulation, staff development, guidance and career development and internships.

One community college and its local school district made an early commitment to establishing a K-14 educational continuum with an emphasis on

high academic standards, doing a joint plan on educational reform, academic goal setting, and integrated school-to-work preparation. They integrated their Tech Prep and STWOA initiatives and the governance requirements, forming an integrated council with local business and industry leadership; the council in turn spearheaded various school-to-work transition reforms.

Other Forms of Collaboration

Besides working together to improve students' academic and workforce preparation through improved articulation and coordination of courses and programs, the community colleges and school districts occasionally collaborated for other purposes. These were primarily to share costly training resources and create economies-of-scale in their own programs. These efforts helped to integrate the two systems structurally, rather than programmatically. For example, several local school districts contracted with CCAC to offer selected programs, such as academic support for at-risk students and adult evening programs, which would have been too costly or inefficient for the districts to offer themselves. GTCC collaborated with its local school district to jointly raise business and industry support for technical labs, some of which they then shared. CCAC leases space in most of the county's school districts to further decentralize its services.

ANALYSIS

There were extensive linkages between the four community colleges and secondary schools, but their breadth and scope varied. Some of the linkages were simply a collection of different activities; others were reinforcing activities and possibly even synergistic. For many of these activities, the term collaboration may only be loosely applied, representing service and resource sharing. Only the more comprehensive programs reflected what Langman and McLaughlin (1993) determine as the most intensive form of collaboration, joint action.

The most commonly available, but least intense, forms of collaboration were the information-sharing strategies from community colleges to secondary schools, particularly to encourage students to pursue technical careers, and a community college education. The next most commonly available and somewhat more intensive, were the professional and curriculum strategies, primarily facilitated by community colleges for secondary school teachers (although sometimes serving to improve their own programs) to improve their teaching and student learning.

The third most frequently found type of collaboration was structural bridging between community colleges and secondary schools through articulation agreements designed around common course areas and programs of study. This articulation primarily facilitated student transition between institutional levels. Although none of the three most common forms of collaboration did much to alter the community college or secondary school programs, they facilitated student access to community college and improved secondary school preparation for postsecondary education and employment.

These forms of collaboration between the community colleges and public schools, and their relative intensity, are primarily what Haycock (1998) termed as unidirectional (from community colleges to secondary schools). They are primarily administrative and transition-focused (as Stewart & Johanek, 1998, had asserted) and marginal to the overall mission and purpose of the community colleges.

The comprehensively organized work-based learning programs offered by the four community colleges represented the most intensive programmatic experiences for students. Even these, however, focused mainly on changing the design and delivery of secondary school components. This finding was consistent with the national Tech Prep evaluation research (Silverberg, Haimson, & Hershey, 1998), which found comprehensive Tech Prep programs to be rare and

those that included community college improvements even rarer. The existence of efforts to forge broadly available comprehensive 2+2 articulated programs through two of the community colleges is, therefore, unique.

Two collaborative strategies seemed to facilitate change in the community colleges themselves—active business and industry interest and participation and an active role for community colleges encouraged by the integration of local Tech Prep and STWOA initiatives. Through extensive business input on their training needs, community colleges learned about the gaps in their own programs for workforce preparation. Through integrated, regional planning efforts of the consortia and partnerships, community colleges, school districts and business and industry developed three-way partnerships. Their attention, however, usually focused on workforce preparation, with little collaborative attention directed to specific academic skill improvement strategies. Moreover, their own program improvement efforts appeared to have been parallel to the Tech Prep/STWOA program developments rather than integrated.

Thus, even for the more comprehensively focused community colleges, the improvement efforts that grew out of their various K-14 collaborations were primarily capacity-enhancing strategies (making the K-14 educational continuum more efficient in helping students' transition and enhancing the workforce preparation relevance of coursework and programs). More system-building changes between the secondary schools and community colleges may not emerge until significant numbers of students follow up well-defined high school program experiences by enrolling in appropriate community college technical degree programs.

Role of Federal Funding

Much of the workforce-preparation-related collaboration between secondary schools and community colleges was stimulated greatly by two federal

initiatives, Tech Prep and STWOA. The community colleges and secondary schools were also under pressure from the same workforce development conditions that had led to formation of these two policies—the need to improve the academic and technical skills of the entering labor force, particularly through improved school-to-work transition. Many of the collaborative efforts that we found preceded these two policy initiatives, but the efforts were greatly strengthened, sometimes dramatically so, by the policies. To a limited extent, the collaborations between the two educational institutions were also stimulated by Goals 2000, a third federal initiative focused on raising academic standards and preparing all students well for postsecondary education.

Tech Prep, which preceded the other two federal initiatives, had the strongest influence because it most clearly spelled out a major role for community colleges. All four community colleges were the lead agencies for their area's Tech Prep initiative, managing the grant funds, coordinating their partner activities, and leading on other activities (particularly awareness activities, professional development and curriculum development). This put the community colleges in a central role to facilitate school district collaboration. But the four colleges met with different degrees of success, in part because they were not all equally able to engage their local school districts and secondary schools. The two community colleges with comprehensive and integrated Tech Prep approaches had close working relationships with their partner school districts. The other two colleges were able to offer only components to the numerous schools in their county.

Both Tech Prep and the STWOA drew the four community colleges into regional educational planning with their local school districts—all four were members of a regional school-to-work partnership. But the planning took different forms in each of the four counties and directly affected the comprehensiveness of their programs and collaborations. For two community colleges, these consortia and partnerships were coterminous and integrated for strategic planning on both

Tech Prep and STWOA efforts, and with the service areas' one or two county-wide school districts. In both cases, the school districts and community colleges shared a strong commitment to improving the workforce preparedness of local youth, upgrading their academic skill performance, using the applied and integrated curriculum approach of Tech Prep, and incorporating the work-based learning of STWOA.

These two community colleges and their school districts integrated their Tech Prep and STWOA initiatives and resources to foster more broadly focused system building for all students, particularly at the secondary level. The system-building strategies were centered on the primary elements of STWOA, and generally included: career-focused program areas of study; professional development for teachers on applied academic instruction; work-based learning experiences; career development; and career and college guidance services. These system-building strategies had broad-based business and industry participation and included an extensive marketing campaign for students, parents, educators and the community at large about the changing labor market and educational requirements.

By combining Tech Prep and STWOA efforts, the community colleges were able to integrate the partnership infrastructure required for both initiatives, engaging common leadership and oversight for both. They were also able to pool professional development resources, serving more teachers and community college instructors. Finally, they used the Tech Prep articulated 2+2 course model as a platform for the career-focused programs of study, adding the STWOA required work-based learning.

With this institutional and programmatic infrastructure, these two "intensively involved" community colleges (and their collaborating school districts), developed a number of complementary programs and activities that enhanced and extended their STWOA and Tech Prep missions. For example,

GTCC and its partner school district obtained a corporate foundation grant for more professional development resources and student scholarships that were tied to their college Tech Prep programs of study, generating a more comprehensive model that encouraged businesses to underwrite paid work experience and college tuition.

For the other two community colleges, working with several school districts meant that they had to invest more time and resources selling the Tech Prep model to each district and even individual school staff. Since they had to work with each school to develop agreements for each component of Tech Prep, they were far less likely to create a comprehensive, well-articulated Tech Prep program with any of them.

Based on interviews with community college officials in the two "intensively involved" community colleges, it appears that the emergence of STWOA funding helped to greatly extend the planning started under Tech Prep. The combined focus of Tech Prep and STWOA on career clusters led the local school districts to reorganize their high school programs according to the locally selected career-cluster areas. Finally, the STWOA partnership requirements helped to formalize the tri-partite planning among the school districts, community college, and business and industry. For the other two community colleges, their local STWOA initiatives were less well developed and their roles were limited. As a result, they did not experience the same benefits.

The four community colleges were least involved in formal Goals 2000 planning, although the federal policy had stressed community college support in improving student transition to postsecondary education. Only one community college, MCC, formally participated in Goals 2000 planning with two small local school districts on student transition preparation. Another community college, VCC, linked STWOA and Goals 2000 in their marketing materials to dispel the myth that STWOA was narrowly focused on vocational preparation.

In sum, the three federal policy initiatives, to varying degrees, seemed to be instrumental in establishing an agenda for workforce preparation reform and collaboration between secondary schools and community colleges on this agenda. The form and nature of community college involvement, moreover, was found to parallel the explicitness of their intended role in the three policies. Thus, for example, it was not surprising to find so little community college involvement in Goals 2000-related collaborations, given that a postsecondary education role was only implied but not defined in the federal policy. In contrast, the better defined community college role spelled out in Tech Prep paralleled the more common K-14 collaborations found.

Other factors contributed, however, to differences found in the K-14 collaborations and seemed to influence whether these federal policy initiatives were either catalytic for collaboration and system-building or were ineffectual.

Factors Promoting Collaboration

Four factors were found to be most influential in promoting community college collaboration. These were: a limited number of partner school districts; supportive and facilitating state policy interpretation and direction; strong visionary college leadership; and multiple opportunities for collaborative planning.

A limited number of partners. The community colleges that had only one or two school districts in their service area had the most substantive collaborations. With only a limited number of school district partners, it was easier for community college and school district officials to talk substantively, develop a common vision and maintain a common focus. This type of collaboration appeared to have been almost impossible for the two community colleges that worked with a large number of school districts, each with different

priorities and levels of commitment to workforce development and school-to-work transition priorities.

To some degree, this finding contradicts Hershey et al. (1998), in their assessment of Tech Prep implementation and consortium size, where they found that very small consortia were least likely to implement Tech Prep well. The difference here is that the consortia with few school districts had large, well-populated regions. Moreover, their states had encouraged county-based school districts, so each district was large, with multiple high schools and vocational/technical schools. As a result, the Tech Prep consortia were able to work with a small number of school leaders and community college staff to develop comprehensive work-based learning programs that were implemented district-wide. The other two community colleges were not able to do so because they had to negotiate with many different school leaders and staff on each element of Tech Prep.

State policy interpretation. Each state's interpretation of how Tech Prep and STWOA funds should be focused, the target areas to be served, and the role of community colleges as active partners seemed for these four cases to be influential in their collaborative outcomes. For example, the two intensively involved community colleges were in states that stressed K-14 system-building through Tech Prep and STWOA funds, targeted coterminous areas for grant initiatives, and stressed a substantive community college role in local planning efforts. Their states also allocated their STWOA funds according to the same regional areas as they had their Tech Prep funds. In both cases, these regions matched the community college's service area and local school district boundaries, simplifying regional planning.

In contrast, the other two states narrowly interpreted the Tech Prep and STWOA policies as primarily secondary school reform, did not try to integrate their planning by allocating the funds to the same service delivery areas, and

seemed to be ambivalent about secondary school and community college collaboration in creating comprehensive programs. In these two states, Tech Prep funds were allocated according to the community colleges and their service areas, while the targeting for the STWOA funds changed at least once in the state's early implementation and never matched the Tech Prep target areas. Finally, rather than consolidate their Tech Prep and STWOA policy efforts, these two states encouraged competition among educational agencies over STWOA funding, making it even less likely that these funds would be used to complement Tech Prep funds and strengthen school district and community college collaborations.

Leadership priority within the community college. The two intensively involved community colleges had strong, visionary presidents who made workforce development a priority for the community colleges' mission well before Tech Prep and STWOA funds were available. Tech Prep and STWOA initiatives helped them pursue their broader workforce development mission, which they did through and in addition to these two policies. As they and others explained, these college officials were proactive in engaging school district and business and industry participation, actively selling their priorities and engaging others. They and their staff shaped and reshaped their vision as they increased their collaborations, experimented with different approaches, and obtained complementary public and private funding. Their efforts to improve the workforce development of young adults combined secondary school reform and community college reform. They were as committed to helping the local school districts improve their academic and technical skill preparation of students, as they were to improving the quality and relevance of their own programs for business and industry.

Collaborative planning for multiple resources. The two community colleges with the intensive and integrated STWOA/Tech Prep programs described their model-building process as iterative. The program designs were stimulated in

part by the funding opportunities, while at the same time they stimulated a rethinking on how to use the funds. Their integrated governance structures supported and deepened the process, drawing the business community into more significant roles. The STWOA funds, in particular, were useful to promote more substantive business participation, which in turn led to new program ideas (such as the GTCC/GPS apprenticeship model with community college scholarship).

Such iterative and reflective planning seemed to be feasible only because the same institutional partners were engaged in planning for all the funding sources. Both VCC and GTCC worked with the same school districts and a limited number of intermediary business groups (primarily the chamber of commerce) that could represent and broker the business community's participation. In both cases, local business and industry were actively engaged in helping to improve the work preparedness of entry-level workers, ranging from advising on curriculum to sponsoring work-based learning experiences. They actively participated in the integrated governance efforts, in turn underscoring the value of collaborative resource planning.

In these two cases, however, the integration of multiple resources appeared to have been limited to workforce preparation and school-to-work transition system-building funds, incorporating other similar public and private funds. In none of the cases, did collaborative planning combine educational reform and workforce preparation reform. Specifically, these collaborative governance forums and other entities never integrated their work with Goals 2000 educational improvement efforts, despite the explicit policy language in both STWOA and Goals 2000 for their coordination of complementary policy initiatives.

Impact on Community Colleges

Interviews with community college officials revealed that they pursued

school-to-work system-building efforts with local school districts for the following reasons: to improve student recruitment and retention in community college programs; to prepare young people better for the changing labor market; and to provide a community service. The community colleges varied widely in how central these reasons were to their mission and purpose, how they staffed for these initiatives, how the programs and initiatives were integrated into the college's regular programs, and how aggressively they pursued other opportunities to build on these goals.

For two community colleges, the system-building efforts were piecemeal at best, with little attempt to integrate them with their colleges' regular programs and limited effort to pursue other opportunities. Instead, they worked within their existing close school district relations to extend services on a selective basis. The multiplicity of school district partnerships and the resulting lack of policy coherence seemed to have discouraged the community college from taking further steps.

For the two intensively involved community colleges, workforce preparation efforts were much more comprehensive in nature, substantively changing the relationship between the community colleges and school districts, while revising program content, instructional strategies and career preparation efforts. For both community colleges, the efforts are still underway, often more planned than realized for all participating high schools and community college programs. Nonetheless, the community colleges and their partner school districts and business communities formed a jointly developed vision about how best to prepare youth for quality employment (and develop better quality workers for their areas), and were making pursuit of this vision a priority. The depths of their collaborations appeared to be iterative—that is, as the community colleges and school districts began to share information and forge shared goals, and had early successes with some comprehensive program offerings, they began to branch out

into additional forms of collaboration. GTCC, for example, started its comprehensive programs as a pilot in one technical area and gradually expanded to seven technical areas and then nine, with the intent of eventually being able to offer work-based learning experiences to all interested high school students.

Based on focus group interviews with community college students who had been in Tech Prep in high school, it appears that they were motivated to pursue technical careers with community college training if several pieces were in place. These pieces include early career and educational advice; clear benchmarks for performance linked to career options; course articulation for advanced college credit; and work-based learning experiences and vocational education scholarships. Only the most comprehensive programs, supported by multiple funding initiatives, had achieved this integrated transition system for their students.

At the time of the site visits in 1997-98, the four community colleges had done only limited assessment of their Tech Prep programs and none of their STWOA-related efforts, making it difficult to draw conclusions about the impact either policy has had on the community colleges. Much of the Tech Prep assessment was limited to identifying which high school students and graduates had high school transcripts reflecting Tech Prep "career majors." According to the reports of community college officials (of the less intense programs), Tech Prep students were only a small percentage of all high school students and only a small percentage of all first-time community college students. The two community colleges with more comprehensive Tech Prep/STWOA programs anticipated that a larger percentage of their incoming student population would be Tech Prep affiliated. For example, MCC reported that 90 Tech Prep students enrolled there in the 1996-97 school year (representing less than two percent of all credit students aged 18 to 22). In contrast, VCC estimated that 28 percent of the school districts' students had Tech Prep plans, while 55 percent of the districts'

students fit the Tech Prep course-taking profile without formally registering in Tech Prep.

Only one community college, GTCC, had completed a preliminary analysis to ascertain whether their Tech Prep students were better prepared for community college work. Comparing Tech Prep completers and non-Tech Prep completers in one cohort of entering high school graduates, they found that Tech Prep completers were less likely than their peers to need developmental courses and were more likely to have higher GPAs and earn more credit hours in their community college courses. Another community college, VCC, found that student participation in Tech Prep improved community college retention and decreased the need for remediation. They found that Tech Prep also yielded broader benefits of improved relations among schools, colleges and business and industry through their articulation and increased involvement.

CONCLUSIONS AND IMPLICATIONS

The case study analyses found that there are four primary ways in which community colleges and K-12 school systems are collaborating to improve the workforce preparation of youth: raising standards, professional development, and curriculum and program development; educating students, parents and educators about the changing labor market; increasing the perceived value of postsecondary education; and simplifying students' transition. These cases demonstrated not just the feasibility of collaboration, but also the creativity and variability of approaches that are being pursued.

However, their significance in forging new, integrated educational systems seems to be quite limited. The more common strategies were primarily administrative and informational in nature, and did little to change the nature of preparation within either secondary schools or community colleges. Although

several capacity-building strategies were prevalent—through professional and curriculum development—frequently these were limited to secondary school change.

Nonetheless, two strong examples of significant systemic collaboration were found in this study, where capacity-building strategies and program creation strategies were combined on a large scale. These two had articulated 2+2 programs with well-defined career majors at the secondary level connecting to focused technical-degree programs. The rarity of this intensive, systemic integration points to the importance of understanding how and why such models are feasible.

In this research, it appeared that such significant program development was highly dependent upon several internal and external factors: leadership, coherence of state policy interpretation of federal system-building resources (Tech Prep, STWOA and Goals 2000), collaborative planning over multiple resources, and a limited number of partner institutions in these collaborations.

Federal policy resources and states' use of these and their own resources appeared to have played a significant role in stimulating collaborative efforts between community colleges and school districts. These policies and their interpretation seemed to define in large part the local community college and school district capacity for system-building, providing seed money for development efforts and endorsing and reinforcing common educational priorities. This was particularly clear for the more explicitly defined policies (like Tech Prep), in contrast to the more implicit policies (like Goals 2000). The greater the coherence among the policies and the more clearly they supported a role for community colleges in workforce development of youth, the more feasible it was for these institutions to pursue these efforts.

These policies, however, only create opportunities and remove some barriers to collaboration. The vision and leadership of the community colleges and

their partner school districts strongly influence how actively and creatively the community colleges respond to these policy and funding opportunities. Building on a workforce development mission further strengthens the reform efforts within the community colleges and with their partners in school districts and the business community. The more substantive and transformative collaborations also had expanded interpretations of workforce development that they saw as beginning early in public schooling and carrying forward through the community college programs. This commitment to improving the public schools as well as their own institutions seemed to be critical for fuller integration of the community colleges and secondary schools in forging a seamless transition system.

This research was limited to four community colleges and their collaborative efforts with their local school districts. Additional case-study research might yield different findings. However, the similarities between the findings of this study and the national evaluations of the various policy initiatives help to validate these findings.

It is difficult to speculate what the future policy and programmatic implications are for system building between community colleges and secondary schools on workforce preparation and education reform. Given how difficult it is for local areas to forge these collaborations, it is likely that loss of the federal funding, however weak in support of the collaborations, may remove an important source of motivation. It is unclear whether any of these examples are sufficiently well developed to become self-perpetuating. However, it is clear that these collaborations have become more than mechanisms for organizational efficiency and economies of scale. The more intensive collaborations seem to have forged broad-based participation on a wide range of shared interests, and, for one community college, the basis for additional grants and funding that reinforce its collaborative efforts.

It is clear, from these four case studies, that the proactive role taken by

community colleges in developing shared goals and approaches with secondary schools can lead to more broad-based student participation. It is too early, however, to see how this will impact their subsequent community college participation.

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